

REQUEST FOR RECONSIDERATION

Applicant has carefully reviewed the Examiner's Official Action dated May 12, 2010, in which the Examiner rejected claims 1, 11, 14-18 and 23-28 under 35 U.S.C. 103(a) as being unpatentable over Fujii (US 6,159,421) in view of Hirano (US 6,774,561); and claims 2, 3, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Fujii in view of Aprile et al. (US 5,418,424).

The rejections are respectfully traversed on the grounds that the Fujii, Hirano, and Aprile patents fail to disclose or suggest, whether considered individually or in any reasonable combination, a photoelectron generating plate in which:

- *a thickness of the photoelectron emission layer is greater than a maximum surface roughness of an underlying layer thereof,*

as recited in each of independent claims 1, 15, and 25. In particular, the Applicant again respectfully traverses the Examiner's conclusion that Hirano's teaching of a light emission layer having a thickness greater than the maximum surface roughness of the underlying layer would have been obviously applicable to Fujii's photoelectron emission layer. **This is not an attack on the references individually, as alleged by the Examiner, but rather an attack on the proposed combination.** *In particular, the Examiner has given absolutely no reason why a photoelectric emission layer of the type disclosed by Fujii should have the same relative thickness as a light emission layer of the type disclosed by Hirano.* The Hirano patent does not give any reason to think that the light emitting layer disclosed therein should be applicable to photoelectric emission layers of the type taught by Fujii, and Fujii gives no reason to look to light emission layer structures for guidance on determining the thickness of a photoelectric emission layer. Furthermore, this is hardly a matter of KSR type "common sense" or prior

knowledge in the art, and the combination proposed by the Examiner is hardly implied by the references. Instead, the only reason making applying light emission layer thickness principles to a photoelectric emission layer appears to be Applicant's own disclosure, which is not a proper basis for making the combination.

The Hirano patent could not have suggested modification of the system of Fujii to include a specific relationship between a photoelectric emission layer (or any other type of emission layer) and an underlying layer because Hirano fails to disclose any relationship between the thickness of the light emitting layer (6c) and the maximum surface roughness of the underlying hole transporting layer (6b). Hirano merely discloses that light emission layer (6c) has a thickness of 50nm and that hole transporting layer (6b) has a thickness of 20nm. The Examiner provides no reason why the teaching of a 50 nm photoelectric emission layer has any applicability to the thickness of Fujii's light emission layer. Rather than questioning the individual references used in the rejection, the Applicant is actually questioning the proposed combination, and in particular requests answers to the following questions: *Does the Examiner have any reason to believe that photoelectric emission layers must be the same thickness as light emission layers? Furthermore, what does the thickness of Hirano's light emission layer have to do with the maximum surface roughness of the hole emission layer?* If the answers to these questions are that the only reason for the combination is the fact that both references disclose emission layers (*albeit* of different types) and that there is no disclosed relationship between emission layer thickness and maximum surface roughness, then the proposed combination (not just application of the individual references) is improper. **It is not an improper attack on references *individually* to point out that neither reference includes any teachings that would lead one to the proposed combination.**

By the way of review, the present invention, as defined in claims 1, 15 and 25, has the feature that a thickness of the photoelectron emission layer is greater than a maximum surface roughness of an underlying layer thereof. According to this configuration, the present invention has the advantages that a photoelectron generating plate of the present invention attains good durability and emits many photoelectrons for a long time, since photoelectrons can be emitted from the whole surface of the photoelectron emission layer and the diffusion of the material of the underlying base member into the photo electron emission layer can also be blocked. This advantage is found only in the claimed invention. It is not suggested by Fujii because Fujii does not teach anything about the thickness of the photoelectric emission layer relative to the surface roughness of the underlying layer. Furthermore, it could not be suggested by Hirano because Hirano does not teach a relationship between the thickness of an emission layer and an underlying layer. In fact, Hirano does not even teach a photoelectric emission layer, as claimed, but rather teaches a light emitting layer which has no obvious relationship to the photoelectric emission layer of Fujii.

There are many different types of light emission layers, and many different types of electron emitters. The different light emission layers and electron emission layers can have numerous different thicknesses. It is not logical that a particular electron emission layer should have the same thickness as an arbitrarily selected light emission layer. When selecting a thickness for Fujii's electron emission layer, is there any possible logical reason why one of ordinary skill in the art would have turned to Hirano's teaching of a light emission layer, or to derive from Hirano a teaching of thickness in relation to surface roughness, as claimed (and not taught by either Fujii or Hirano)? If not, the rejection must be considered to be based on improper hindsight.

All that Hirano actually teaches is that the hole transporting layer (6b) formed from bis(N-naphthyl)-N-phenylbenzidine(α -NPL) (see paragraph 5, lines 23-35) has a thickness of 20nm. **There is no reason to think that a hole transporting layer made of a different material would have the same thickness, and Hirano is completely silent on a maximum surface roughness of the bis(N-naphthyl)-N-phenylbenzidine(α -NPL).** Thus, Hirano does not disclose, suggest or imply the relationship between the thickness of the light emitting layer (6c) and the maximum surface roughness of the bis(N-naphthyl)-N-phenylbenzidine(α -NPL).

In other words, the only thing that the two references (Fujii and Hirano) have in common is the teaching of layers that emit *something*. They do not emit the same thing, but at least they emit something. However, the mere fact that the layers emit something is not sufficient, except in the hindsight of Applicant's own disclosure, to suggest that the thicknesses of the respective layers should be the same. **Certainly, electrons do not have the same properties as photons, so why should layers that emit electrons have the same properties as layers that emit photons?**

According to the Official Action, the thickness limitation is met because light emitting layer (6c) corresponds to the claimed photoelectron emission layer, has a thickness of 50nm, and is positioned on the top of a hole transporting layer (6b) having a thickness of 20nm. In other words, according to the Official Action, the light emitting layer is thicker than the maximum surface roughness or unevenness of underlying layer since the light emitting layer has a thickness of about two and half time larger than the underlying layer. However, Hirano's teaching that layer (6c) is 2.5 times thicker than layer (6b) does not imply that layer (6c) is thicker than a maximum surface roughness of the underlying layer (6b). To the contrary, the

maximum surface roughness of the underlying layer (6b) is not necessarily related to the thickness of the underlying layer described by Hirano.

Because the Fujii, Hirano, and Aprile patents do not disclose, suggest or imply, whether considered individually or in any *reasonable* combination, the claimed feature that a thickness of the photoelectron emission layer is greater than a maximum surface roughness of an underlying layer thereof, it is respectfully submitted that it would not have been obvious to those skilled in the art to combine the cited references to obtain the present invention, in order to achieve the above-mentioned technical effects of the present invention. Accordingly, it is respectfully submitted that the rejection of claims 1, 15, 25, and of the dependent claims, under 35 USC 103(a) be withdrawn.

CONCLUSION

The Applicant believes that this is a full and complete response to the Office Action. For the reasons discussed above, applicant respectfully submits that the pending claims are in complete condition for allowance. Accordingly, it is respectfully requested that claims 1-3, 11, 14-20, and 23-28 be allowed in their present form.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects, in order to place the case in condition for final allowance, then it is respectfully requested that such amendment or correction be carried out by Examiner's Amendment and the case be passed to issue.

Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

Respectfully submitted,
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August 3, 2010

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